



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: UT3401

Title: Source Water Protection Assessment Tools Development

Focus Categories: Water Quality, None

Keywords: Contaminant transport; Decision models; Environmental sanitation; Pollutants; Risk analysis; Septic tanks

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Abstract

The susceptibility of source waters to contamination is to be determined for public water systems. Each system will be required to prioritize potential contamination sources, determine whether or not the source water is susceptible to each source, and to explain the basis for its determination. Research is being conducted to develop source water assessment tools that improve the use of scientific information and professional experience. The work proposed here is a continuation of a research project addressing this topic. Considerable progress has been made in designing and structuring assessment tools. The principal objective of the project is to develop a probabilistic exposure assessment system, based on fault tree analysis methodology, for integrating watershed information to evaluate the susceptibility of Utah drinking water sources to unacceptable contamination. Specific research tasks are to:

1. Integrate the hydrologic pollutant transport models that have been developed in the first two years of the project into a fault tree or fault net exposure assessment system.
2. Develop a pollution source inventory database that will interface with the exposure assessment system to provide information that may be used in the transport models and in risk characterization.
3. Develop a computerized decision support tool that will guide source water protection managers through the processes of ranking pollution sources relative to their health effects and the probability of the hazard occurring.
4. Compose the complete Source Water Protection Assessment tool kit including a source inventory database, exposure assessment model, and a source prioritization protocol (guidance).
5. Apply the "tool kit" to selected Utah drinking water supply watersheds and evaluate the results.